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Hirano

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[54] MULTI-CHANNEL ECHO CANCELER

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379/389; 379/390; 379/206; 379/201; 381/66;
381/94[58] Field of Search 379/391, 388, 389, 390,
379/206, 201; 381/66, 94

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[57] ABSTRACT

A multi-channel echo canceler for canceling echo generated as a result of propagation of 2-channel received signals, along a spatial acoustical path via a first and a second loudspeaker, from a transmitted signal containing a speech source signal received through a first and a second microphone and the echo. The echo canceler is capable of highly accurate delay time difference estimation and also of quick detection of the movement or change of the talker. Right after the movement or change of the talker, the filter coefficient set updating is stopped, or step size is updated. Deterioration of the echo cancellation performance does not occur that might otherwise result from delay of the detection of the movement or change of the talker or reduction of estimated delay time difference.

12 Claims, 14 Drawing Sheets

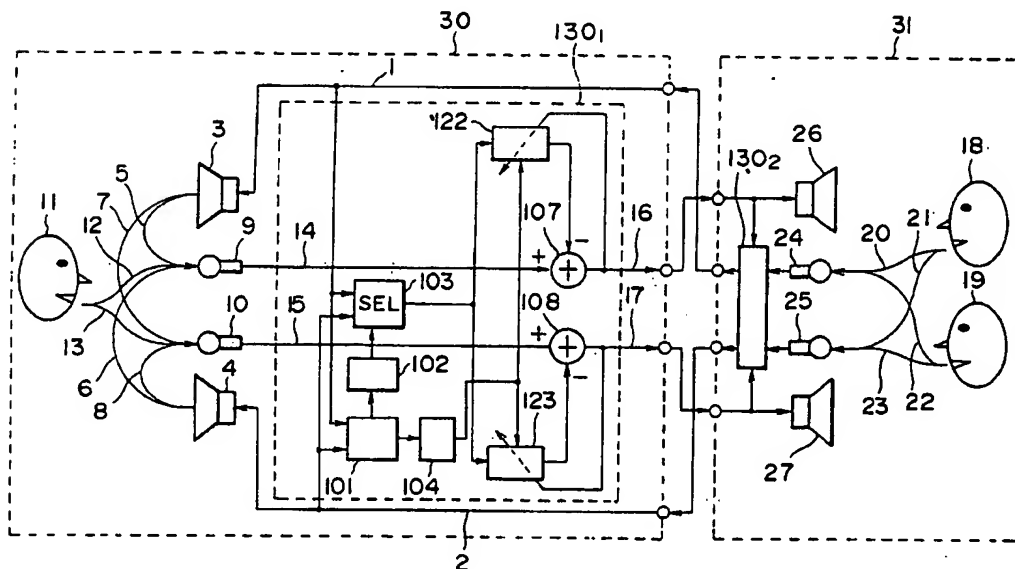


FIG. 1

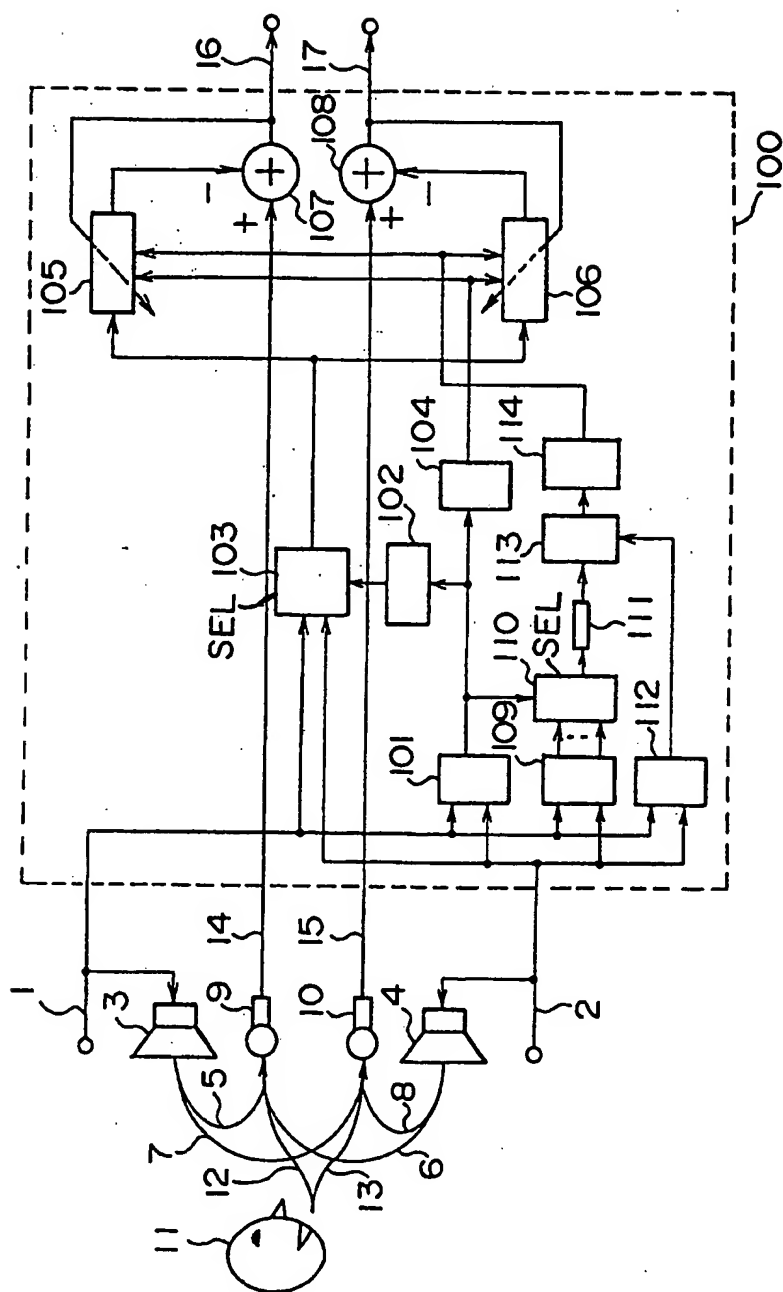


FIG. 2

